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Guide to Bird Habitats of the Ozark Plateau

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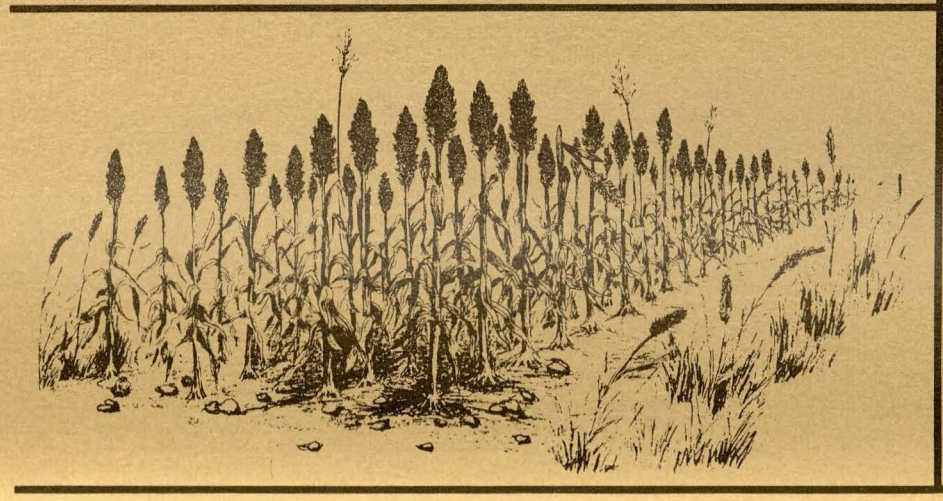

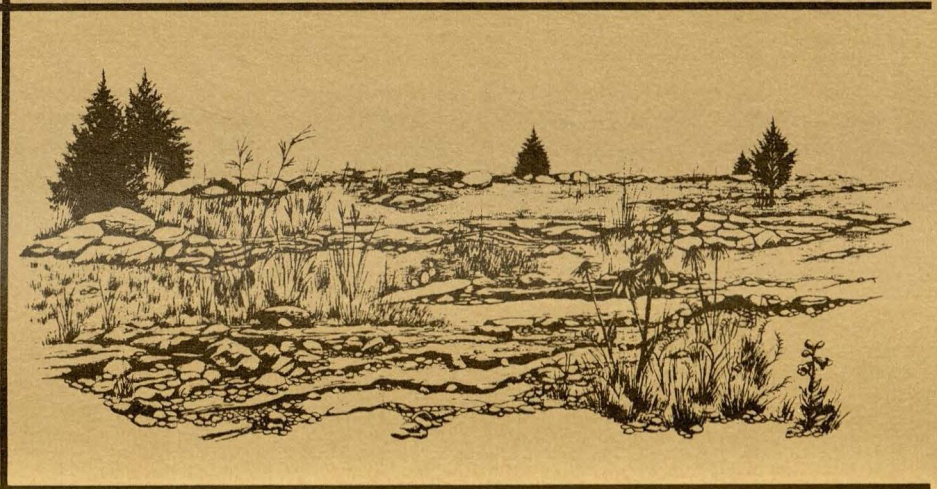

GUIDE TO BIRD HABITATS OF THE OZARK PLATEAU

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FOREWORD

The Ozark Plateau is becoming increasingly important to both urban and rural inhabitants by providing bird-watching, photography, hiking, canoeing, sightseeing, hunting, and fishing. Visitors who come to enjoy wildlife other than by hunting accounted for 200,000 visitor days of use in 1975 on the Mark Twain National Forest; the projected demand for 1990 is 550,000 visitor days.

People interested in wildlife are attracted to the Ozark Plateau because of the extensive forests and glades, and the diverse environments for wildlife found there. One of the reasons why the wildlife community of the Ozark Plateau is so diverse is the geological history of this hill country. Aside from the Appalachians and the Mexican Plateau, this is the only area of the North American mainland to escape both flooding and glaciation since its emergence some 500 million years ago. Some of the plants and animals living here have been evolving without interruption since that time.

Another reason the Ozark wildlife community is so diverse is that the Ozarks are a focal point of several converging plant communities. Here, eastern hardwoods, southern pines, and western prairies, along with the wildlife each supports, all reach the outward limits of their advance. As a result, plant and animal representatives of different environmental conditions are found in close proximity.

INTRODUCTION

People who are interested in birds are of all ages and from all walks of life. Their interest in birds goes through several stages — *awareness, desire to identify,* and *interest in bird biology.* No reference book is needed for awareness — the great diversity in bird behavior, size, color, and song perpetuates awareness. Many reference books are already available to assist in identification. (The two most popular are *Peterson's Field Guide*[1] from Houghton Mifflin and *Birds of North America* from Golden Press.) Bird biology, especially habitat selection, is what the present reference book is about.

This guide illustrates 26 habitats occurring in the Ozarks. Some of these are very limited, but are included for completeness. We have listed the bird species associated with each of these habitats, and have included season of residency, abundance, and expected activity for each bird in each habitat. Species that only migrate through have been omitted because they only stop for a short time and generally do not select particular habitats.

Although this reference was written specifically for the Ozark Plateau, many of these same habitats and associated birds are found throughout most of the eastern United States. So with due regard for local differences, birders will find this reference generally useful all over the eastern part of the nation.

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[1]*Mention of trade names does not constitute endorsement of the products by the USDA Forest Service.*

Almost any landscape has bird species that have adapted to inhabit it. Whenever a landscape is altered, some species will prosper, others will suffer. Land managers can use this book to predict which species will benefit and which will decline when tree and shrub cover is changed.

The habitat grouping or classification in this work should bring some order out of the diversity of bird habitats in the Ozark Plateau. Used as a standard, this habitat grouping will help birders, forest users, and forest managers communicate more precisely.

HOW TO USE THIS BOOK

This book is designed to be used in two ways: (1) to determine the habitats of a specific bird, and (2) to determine what birds to expect in a specific habitat.

To determine the habitats of a specific bird, turn to the locator table on page 69. Find the desired bird in the left-hand column, the "x's" then show the habitats it prefers. Turn to these habitats for details on residency, abundance, nesting, and foraging from the charts. (The charts are explained on page VI.)

To determine what birds to expect when you are birding in a specific habitat, turn to the list of habitats and habitat groups on page VI and pick out the appropriate habitat. Look at the illustration to see if it matches the habitat you are in. The charts list the birds found in that habitat.

HABITATS AND HABITAT GROUPS

Following is a list of 7 habitat groups that are broken down into the 26 habitats illustrated and charted in this publication.

00.— Grass or Crop
- 01 Cereal Grain (Annual Crop)
- 02 Annuals
- 03 Legumes (Perennial Crop)
- 04 Perennial Grass (Cool Season)
- 05 Perennial Grass (Warm Season)
- 06 Shrub and Grass

10.— Brush
- 11 Shrub and Fruiting Tree
- 12 Grass and Shrub Savannah
- 13 Shrub and Fruiting Tree Savannah
- 14 Forest and Field Edge
- 15 Glades
- 16 Eastern Redcedar

20.— Oak-Hickory Forest
- 21 Oak-Hickory Regeneration (Herbaceous Stage)
- 22 Oak-Hickory Regeneration (Shrub-Seedling Stage, stems less than 3 inches in diameter)
- 23 Immature Oak-Hickory (Poles and Sapling, 3 to 9 inches in diameter)
- 24 Mature Oak-Hickory (Open Undergrowth)
- 25 Mature Oak-Hickory (Dense Undergrowth)
- 26 Old-Growth Oak-Hickory

30.— Shortleaf Pine Forest
- 31 Shortleaf Pine Reproduction (0 to 3 inches in diameter)
- 32 Immature Shortleaf Pine (3 to 9 inches in diameter)
- 33 Mature Shortleaf Pine (9+ inches in diameter)
- 34 Old-Growth Shortleaf Pine

40.— Wetland
- 41 Wooded Streamside and Bottomland Hardwoods
- 42 Waterhole

50.— Other
- 51 Limestone Bluff and Cave
- 52 Farmyard or Town Residence

EXPLANATION OF HABITAT CHARTS

Residence

The first letter is the residence status:
- R = Permanent resident
- S = Summer or breeding resident
- W = Winter resident

Abundance

The second letter is the expected abundance in each habitat where the bird is likely to occur:
- A = Abundant
- B = Moderately abundant
- C = Common
- D = Uncommon
- E = Extremely rare or endangered

Foraging and Nesting Levels

Habitats were divided into six levels to designate where each bird forages and nests. These levels are generalized; for specifics and for birds that are exceptions, a clarifying note is given. The six levels are:
- WATER = Stream or lake
- HERB = Ground and herbaceous cover less than 1 meter tall
- SHRUB = Shrub and shade tolerant midstory level.
- TREE = Tree crown level.
- BARK = The surface of both living and dead tree trunks and limbs.
- AIR = Aerial feeders

Primary Foods

The food habitats of birds are often variable, depending on season and availability. We have included four broad categories of food:
- SEEDS = Seeds, fruits, buds, or other vegetable matter
- BUGS = Insects and other invertebrates
- PREY = Vertebrate prey
- OTHER = Carrion and other

HABITATS

01 — CEREAL GRAIN (ANNUAL CROP) — Annually planted, domestic, high energy grains such as wheat, milo (grain sorghum), and corn. Normally planted as a single species.

Much bare ground. Generally very uniform horizontally and vertically; little diversity.

01 CEREAL GRAIN (Annual Crop)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Canada Goose	W	D		F								●	
Mallard	W	D		F					●				
Turkey Vulture	S	C		F								●	
Black Vulture	S	E		F								●	
Red-tailed Hawk	R	C		F							●		
Rough-legged Hawk	W	D		F							●		
Golden Eagle	W	D		F							●		
Marsh Hawk	W	D		F							●		
American Kestrel	R	C		F				F		●	●		
Bobwhite	W	C		F					●				
Killdeer	S	C		X						●			Rare in winter
Rock Dove	R	C		F					●				
Mourning Dove	R	C		F					●				
Eastern Kingbird	S	C						F		●			
Horned Lark	R	D		X					●	●			
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			
Purple Martin	S	C						F		●			
Common Crow	R	B		F								●	

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

01 CEREAL GRAIN (Annual Crop)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Eastern Meadowlark	R	C		F					●	●			
Red-winged Blackbird	R	B		F					●	●			
Brewer's Blackbird	W	D		F					●				
Common Grackle	R	C		F					●				
Indigo Bunting	S	C		F					●				Only next to edge
Dickcissel	S	C		F						●			
Savannah Sparrow	W	D		F					●				
Dark-eyed Junco	W	A		F					●				Only next to edge
Tree Sparrow	W	C		F					●				Only next to edge
White-crowned Sparrow	W	D		F					●				Near weeds and brush
Fox Sparrow	W	D		F					●				Near weeds and brush
Song Sparrow	W	D		F					●				Near weeds and brush

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

02 — ANNUALS — Mostly annual plants the first year after soil disburbance. Disking, plowing, or both commonly lead to the occurrence of annual plants.

Composition varies from a single species (such as a solid stand of ragweed) to a mixture of such species as ragweed, foxtail, croton, smartweed, lespedeza, morning glory, wild carrot, and sunflower.

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F								●	
Red-tailed Hawk	R	C		F							●		
Rough-legged Hawk	W	D		F							●		
American Kestrel	R	C		F				F		●	●		
Bobwhite	R	C		F					●				
Killdeer	S	C		X						●			Grazed or bare ground areas
Mourning Dove	R	C		F					●				
Eastern Kingbird	S	C						F		●			
Horned Lark	R	C		X					●	●			
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			
Purple Martin	S	D						F		●			
Common Crow	R	C		F								●	
Eastern Meadowlark	R	C		F					●	●			May occasionally nest
Red-winged Blackbird	R	B		F					●	●			May occasionally nest
Brewer's Blackbird	W	D		F					●				
Common Grackle	R	C		F					●				
Dickcissel	S	C		F						●			May occasionally nest
American Goldfinch	R	C		X					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

02 ANNUALS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Lark Sparrow	S	C		X					●	●			
Dark-eyed Junco	W	A		F					●				
Tree Sparrow	W	C		F					●				
Harris Sparrow	W	D		F					●				
White-crowned Sparrow	W	D		F					●				Near brush
White-throated Sparrow	W	D		F					●				Near brush
Fox Sparrow	W	D		F					●				Near brush
Swamp Sparrow	W	D		F					●				Low wet areas
Song Sparrow	R	D		X					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

03 — LEGUMES (PERENNIAL CROP) — Bare ground openings in woods or brush have been seeded with a single or mixed species of introduced legumes. Species commonly used are red clover, ladino clover, bird's foot trefoil, and Korean lespedeza.

03 LEGUMES (Perennial Crop)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F								●	
Red-tailed Hawk	R	C		F							●		
Rough-legged Hawk	W	D		F							●		
American Kestrel	R	C		F				F		●	●		
Bobwhite	R	C		X					●	●			
Turkey	R	C		F					●	●			May nest near edge
Mourning Dove	R	C		F					●				
Ruby-throated Hummingbird	S	C		F								●	
Eastern Kingbird	S	C						F		●			
Scissor-tailed Flycatcher	S	D						F		●			
Horned Lark	R	C		X					●	●			Grazed areas
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			
Purple Martin	S	D						F		●			Near farmyards
Common Crow	R	C		F								●	
Eastern Meadowlark	R	C		X					●	●			
Red-winged Blackbird	R	B		F					●	●			Occasionally nests
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

03 LEGUMES (Perennial Crop)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Common Grackle	R	C		F					●				
Dickcissel	S	B		X						●			
American Goldfinch	R	C		X					●	●			
Savannah Sparrow	W	C		F					●				
Grasshopper Sparrow	S	D		X						●			
Lark Sparrow	S	D		F					●	●			Grazed areas
White-crowned Sparrow	W	D		F					●				Near brush
White-throated Sparrow	W	D		F					●				Near brush
Fox Sparrow	W	D		F					●				Near brush
Swamp Sparrow	W	D		F					●				Near brush, low wet areas
Song Sparrow	R	D		X					●	●			Near brush

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

04 — PERENNIAL GRASS (COOL SEASON) — Consists of pasture grasses such as bluegrass, fescue, and purpletop. Forbs, including legumes, make up less than 20 percent of total. Woody plants occupy less than 10 percent of space.

Forms a continuous sod that eliminates bare ground; very little diversity in height.

04 PERENNIAL GRASS (Cool Season)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Canada Goose	W	D		F								●	
Turkey Vulture	S	C		F								●	
Black Vulture	S	D		F								●	
Red-tailed Hawk	R	C		F							●		
Rough-legged Hawk	W	D		F							●		
Marsh Hawk	R	C		F							●		
American Kestrel	R	C		F				F		●	●		
Bobwhite	R	D		X					●	●			
Killdeer	S	C		X						●			Grazed areas; rare in winter
Upland Sandpiper	S	D		X						●			Hay meadows
Mourning Dove	R	C		F					●				
Eastern Kingbird	S	C						F		●			
Scissor-tailed Flycatcher	S	D						F		●			
Horned Lark	R	C		X					●	●			Grazed areas
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			
Purple Martin	S	C						F		●			Near towns and farmyards
Common Crow	R	C		F								●	
Eastern Meadowlark	R	C		X					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

04 PERENNIAL GRASS (Cool Season)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Red-winged Blackbird	R	B		X					●	●			Often nests near water
Brown-headed Cowbird	R	C		X						●			*Parasitic nester*
Dickcissel	S	C		X						●			
American Goldfinch	R	C		X					●	●			
Grasshopper Sparrow	S	C		X						●			*Hay fields with song perches*
Lark Sparrow	S	D		X					●	●			Grazed areas
Dark-eyed Junco	W	A		F					●				Edge
White-crowned Sparrow	W	D		F					●				Near brush
White-throated Sparrow	W	D		F					●				Near brush
Fox Sparrow	W	D		F					●				Near brush
Swamp Sparrow	W	D		F					●				Near brush
Song Sparrow	R	D		X					●	●			Near brush

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

05 — PERENNIAL GRASS (WARM SEASON) — Consists of grasses and forbs that are native to the tall grass prairie. The primary grasses include big bluestem, little bluestem, indian grass, and switchgrass with lesser amounts of prairie dropseed and side oats grama. Usually mixed, but colonies of single species — such as a solid stand of little bluestem — are not uncommon.

Forbs vary to include such species as lead plant, blazing star (gayfeather), coneflowers, sunflowers, black-eyed susan, rattlesnake master, wild indigo, prairie clovers, wild strawberry, and desmodium.

Woody plants normally cover less than 10 percent of the area. Sumac, plum, persimmon, dogwood, cedar, oak, and elm are common woody invaders in the absence of fire.

Very diverse vertically. Clumps or bunches form a high canopy over bare soil in between.

05 PERENNIAL GRASS (Warm Season)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F								●	
Black Vulture	S	D		F								●	
Red-tailed Hawk	R	C		F							●		
Rough-legged Hawk	W	D		F							●		
Golden Eagle	W	E		F							●		
Marsh Hawk	R	C		X							●		Prefers this habitat
American Kestrel	R	C		F							●		
Greater Prairie Chicken	R	E		X					●	●			Large prairies only
Bobwhite	R	C		X					●	●			
Turkey	R	D		X					●	●			
Killdeer	S	C		X						●			Grazed areas
Upland Sandpiper	S	D		X						●			
Mourning Dove	R	C		F					●				Burned or grazed areas
Short-eared Owl	W	D		F							●		
Eastern Kingbird	S	C						F		●			
Scissor-tailed Flycatcher	S	D						F		●			
Horned Lark	R	C		X					●	●			Grazed areas
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

05 PERENNIAL GRASS (Warm Season)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Purple Martin	S	C						F		●			
Common Crow	R	C		F								●	
Eastern Meadowlark	R	B		X					●	●			
Red-winged Blackbird	R	B		X					●	●			
Brown-headed Cowbird	R	C		X					●	●			Parasitic nester
Dickcissel	S	C		X						●			
American Goldfinch	R	C		X					●	●			
Savannah Sparrow	W	D		F					●				
Grasshopper Sparrow	S	C		X						●			Hay fields
Lark Sparrow	S	C		X					●	●			Grazed
Dark-eyed Junco	W	A		F					●				Edge
White-crowned Sparrow	W	C		F					●				Near brush
White-throated Sparrow	W	C		F					●				Near brush
Fox Sparrow	W	D		F					●				Near brush
Swamp Sparrow	W	D		F					●	●			Near brush, wet areas
Song Sparrow	R	D		X					●	●			Near brush

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

06 — SHRUB AND GRASS — Represents early stages of plant succession in old fields. Sumac, persimmon, sassafras, plum, black cherry, blackberry, corralberry, cedar, oak, and hickory are the predominant woody vegetation.

Herbaceous plants include aster, golden rod, wild carrot, cinquefoil, yarrow, ragweed, fleabane, and lettuce.

Grasses include broomsedge, bluegrass, purpletop, poverty-oat grass, panic grass, and occasionally indian grass and big bluestem.

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F								●	
Red-tailed Hawk	R	C		F							●		
Marsh Hawk	R	C		X							●		
American Kestrel	R	C		F							●		
Bobwhite	R	C		X					●	●			
American Woodcock	S	C		X						●			
Mourning Dove	R	C		F					●	●			May nest in cedars
Short-eared Owl	W	D		F							●		
Ruby-throated Hummingbird	S	C		F	F							●	May occasionally nest
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			
Cliff Swallow	S	D						F		●			
Purple Martin	S	D						F		●			
House Wren	S	C		F						●			
Bewick's Wren	S	D		F						●			
Carolina Wren	R	D		F						●			
Brown Thrasher	S	C		F	N				●	●			
Loggerhead Shrike	R	C		F	X					●	●		
White-eyed Vireo	S	C			X					●			
Bell's Vireo	S	D			X					●			
Yellow-rumped Warbler	W	D		F					●	●			
Common Yellowthroat	S	C		N	F					●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

06 SHRUB AND GRASS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Yellow-breasted Chat	S	C		F	X					●			
Eastern Meadowlark	R	C		X					●	●			Large grassy areas preferred
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Brown-headed Cowbird	R	C		X	N				●	●			Parasitic nester
Cardinal	R	B		F	X				●				
Blue Grosbeak	S	C			X				●				
Indigo Bunting	S	C		F	N				●				Edge
Dickcissel	S	C		X	X				●	●			
American Goldfinch	R	C		X					●	●			
Rufous-sided Towhee	R	B		F	X				●	●			
Savannah Sparrow	W	D		F					●				
Bachman's Sparrow	S	E		X	F				●	●			Prefers dense grass
Dark-eyed Junco	W	A		F					●				Edge
Tree Sparrow	W	C		X					●				
Field Sparrow	R	C		X	F				●	●			Abundant in summer
White-crowned Sparrow	W	C		F					●				
White-throated Sparrow	W	C		F					●				
Fox Sparrow	W	D		F					●				
Swamp Sparrow	W	C		F					●	●			Near streams
Song Sparrow	W	C		F					●	●			Near streams

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

11 — SHRUB AND FRUITING TREE — An opening that has partly grown up in "pioneer" trees — those first to seed in an opening. Commonly found are stands of sapling and pole-size sassafras, persimmon, plum, black cherry, hickory, and cedar trees and clones of shrubs such as sumac, coral berry, and blackberry. Grasses (panic grass, cheat, broomsedge, and bluegrass) and few forbs are still present in the spaces among the trees and shrubs.

11 SHRUB AND FRUITING TREE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Red-tailed Hawk	R	D		F							●		
Bobwhite	R	B		X					●	●			
American Woodcock	S	C		X						●			Wet areas
Mourning Dove	R	C		F		N			●	●			
Yellow-billed Cuckoo	S	C			X	F				●			
Black-billed Cuckoo	S	E			X	F				●			
Ruby-throated Hummingbird	S	C		F	F	N						●	
Common Flicker	R	C		F		N				●			Cavity excavator
Red-headed Woodpecker	R	C				N	F			●			Cavity excavator
Hairy Woodpecker	R	D					F			●			
Downy Woodpecker	R	D				N	F			●			Cavity excavator
Eastern Kingbird	S	B				N		F		●			
Scissor-tailed Flycatcher	*S*	*D*				*N*		F		●			
Blue Jay	R	C			F	F				●			Occasional nester
Carolina Chickadee	R	D			F	X	F			●			Cavity user
House Wren	S	D		F	X					●			Cavity user
Bewick's Wren	S	D		F	X					●			
Carolina Wren	R	D		F	X					●			Cavity user
Mockingbird	R	C			X					●			
Gray Catbird	S	C			X					●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

11 SHRUB AND FRUITING TREE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Brown Thrasher	R	C		F	X					●			Rare in winter
Blue-gray Gnatcatcher	S	C			X	X				●			
Cedar Waxwing	R	D			F	X			●				
White-eyed Vireo	S	C			X					●			
Bell's Vireo	S	D			X					●			
Black-and-white Warbler	S	C		N			F			●			
Blue-winged Warbler	S	C		N	F	F				●			
Yellow Warbler	S	D			N	F				●			
Yellow-rumped Warbler	W	C		F					●	●			
Prairie Warbler	S	D			X	X				●			
Common Yellowthroat	S	C		N	F					●			
Yellow-breasted Chat	S	C		F	X					●			
Orchard Oriole	S	C				X				●			
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Brown-headed Cowbird	R	B		F	N	N			●	●			Parasitic nester
Cardinal	R	B		F	X				●				
Blue Grosbeak	S	B			X				●				
Indigo Bunting	S	B		F	N				●				Edge
Painted Bunting	S	E		F	X				●	●			Extreme southern Missouri

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

11 SHRUB AND FRUITING TREE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Evening Grosbeak	W	D			F	F			●				
Purple Finch	W	D				F			●				
Pine Siskin	W	C			F	F			●				
American Goldfinch	R	C		X					●	●			
Rufous-sided Towhee	R	B			X				●	●			
Tree Sparrow	W	C		F					●				
Field Sparrow	R	C		X	F				●	●			Abundant in summer
Harris Sparrow	W	D		F					●				
White-crowned Sparrow	W	C		F					●				
White-throated Sparrow	W	C		F					●				
Fox Sparrow	W	D		F					●				
Swamp Sparrow	W	D		F					●	●			
Song Sparrow	R	D		X					●	●			Mostly winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

12 — GRASS AND SHRUB SAVANNAH — A "parklike" area with scattered or clumped immature trees and a grassy ground cover. Found on dryish sites such as benches, upland ridges, and south and west slopes.

12 GRASS AND SHRUB SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F		N						●	Nest in large cavity
Black Vulture	S	E		F								●	
Sharp-shinned Hawk	R	D		F				F			●		
Cooper's Hawk	R	D		F				F			●		
Red-tailed Hawk	R	C		F		N					●		
American Kestrel	R	C		F		N				●	●		Cavity user
Bobwhite	R	B		X					●	●			
Mourning Dove	R	B		F		N			●	●			
Yellow-billed Cuckoo	S	C			X	F				●			
Black-billed Cuckoo	S	D			X	F				●			
Barred Owl	R	D		F		N					●		Cavity user
Ruby-throated Hummingbird	S	C		F	F	N						●	
Common Flicker	R	C		F		N				●			Cavity excavator
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Red-headed Woodpecker	R	C				N	F			●			Cavity excavator
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Kingbird	S	B				N		F		●			
Scissor-tailed Flycatcher	S	D				N		F		●			
Eastern Phoebe	S	C						F		●			Nest on beams of old buildings

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

12 GRASS AND SHRUB SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	C		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C			F	X	F			●			Cavity user
Tufted Titmouse	R	C			F	X				●			Cavity user
White-breasted Nuthatch	R	D				N	F			●			Cavity user
House Wren	S	C		F	X					●			Cavity user
Bewick's Wren	S	D		F	X					●			
Carolina Wren	R	D		F	X					●			Cavity user
Mockingbird	R	C			X					●			
Gray Catbird	S	C			X					●			
Brown Thrasher	R	C			X					●			Rare in winter
American Robin	R	C		F		N				●			
Eastern Bluebird	R	C		F	F	N				●			Cavity user
Blue-gray Gnatcatcher	S	C			X	X				●			
Loggerhead Shrike	R	C		F	X					●	●		
White-eyed Vireo	S	C			X					●			
Yellow-throated Vireo	S	D			X					●			
Black-and-white Warbler	S	C		N			F			●			
Yellow-rumped Warbler	W	C		F					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

12 GRASS AND SHRUB SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Prairie Warbler	S	C			X					●			
Yellow-breasted Chat	S	C		F	X					●			
Eastern Meadowlark	R	D		X					●	●			Prefers less woody cover
Northern Oriole	S	C			X	X				●			Prefers park-like area
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Common Grackle	R	B		F	N				●				
Brown-headed Cowbird	R	B		F	N	N			●	●			Parasitic nester
Cardinal	R	B		F	X				●				
Blue Grosbeak	S	B			X				●				
Indigo Bunting	S	B		F	N				●				
Dickcissel	S	C		X						●			
Purple Finch	W	D				F			●				
American Goldfinch	R	C		X					●	●			
Rufous-sided Towhee	R	B			X				●	●			Rare in winter
Bachman's Sparrow	S	E		X	F				●	●			
Tree Sparrow	W	C		F					●				
Chipping Sparrow	S	B		F	N				●	●			
Field Sparrow	R	B		X	F				●	●			Rare in winter
White-crowned Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

12 GRASS AND SHRUB SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
White-throated Sparrow	W	D		F					●				
Fox Sparrow	W	D		F					●				
Swamp Sparrow	W	D		F					●	●			
Song Sparrow	R	D		X					●	●			Mostly winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

13 — SHRUB AND FRUITING TREE SAVANNAH — Scattered trees over a dense shrub understory growing on wet sites.

Trees over 15 feet high cover 10 to 50 percent of area overhead. Trees on uplands include various oaks and hickories; on lowlands walnut, maple, and elm.

Underbrush is diverse, including blackberry, dogwood, hazel, black haw, indian cherry, ironwood, redbud, buckeye, hawthorne, fragrant sumac, smooth sumac, hazelnut, greenbriar, and corralberry.

Grasses are few or non-existent, but forbs include aster, tick trefoil, wood mint, avens, sunflower, lespedeza, lettuce, and sensitive-briar.

13 SHRUB AND FRUITING TREE SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Sharp-shinned Hawk	R	D		F							●		
Cooper's Hawk	R	D		F							●		
Red-tailed Hawk	R	C		F		N					●		
American Kestrel	R	C		F		N				●	●		Cavity nester
Ruffed Grouse	R	E		X					●	●			
Bobwhite	R	B		X					●	●			
Turkey	R	D		X					●	●			
Mourning Dove	R	C		F		N			●	●			
Yellow-billed Cuckoo	S	C			X	F				●			
Black-billed Cuckoo	S	E			X	F				●			
Whip-poor-will	S	C		N				F		●			
Ruby-throated Hummingbird	S	C		F	F	N						●	
Common Flicker	R	C		F		N				●			Cavity excavator
Pileated Woodpecker	R	E				N	F			●			Cavity excavator (large snag)
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Red-headed Woodpecker	R	C				N	F			●			Cavity excavator
Yellow-bellied Sapsucker	W	C					F					●	
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Kingbird	S	B				N		F		●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); *Extremely Rare or Endangered* (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

13 SHRUB AND FRUITING TREE SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Eastern Phoebe	S	C						F		●			*Nest on beams of old buildings*
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	B		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C			F	X	F			●			Cavity user
Tufted Titmouse	R	C			F	X				●			Cavity user
White-breasted Nuthatch	R	D				N	F			●			Cavity user
House Wren	S	D		F	X					●			Cavity user
Bewick's Wren	S	D		F	X					●			
Carolina Wren	R	D		F	X					●			Cavity user
Mockingbird	R	C			X					●			
Gray Catbird	S	C			X					●			
Brown Thrasher	R	C			X					●			Rare in winter
American Robin	R	C		F		N				●			Rare in winter
Eastern Bluebird	R	D		F	F	N				●			Cavity user
Blue-gray Gnatcatcher	S	C			X	X				●			
Cedar Waxwing	W	D				F			●				
Loggerhead Shrike	R	C		F	X					●	●		
White-eyed Vireo	S	C			X					●			
Yellow-throated Vireo	S	D			X					●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

13 SHRUB AND FRUITING TREE SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Black-and-white Warbler	S	C		N			F			●			
Blue-winged Warbler	S	C		N		F				●			
Yellow-rumped Warbler	W	C		F	F	F			●	●			
Prairie Warbler	S	C			X					●			
Yellow-breasted Chat	S	C		F	X					●			
Orchard Oriole	S	B		F	F	N				●			
Northern Oriole	S	C		F	F	N				●			
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Common Grackle	R	B		F		N			●	●			
Brown-headed Cowbird	R	B		F	N	N			●	●			Parasitic nester
Cardinal	R	B		F	X				●				
Blue Grosbeak	S	B			X				●				
Indigo Bunting	S	B		F	N				●				
Purple Finch	W	D				F			●				
Pine Siskin	W	C			F	F			●				
American Goldfinch	R	C		X					●	●			
Rufous-sided Towhee	R	B			X				●	●			Rare in winter
Tree Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

13 SHRUB AND FRUITING TREE SAVANNAH

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Chipping Sparrow	S	D		F	N				●	●			
Field Sparrow	R	B		X	F				●	●			Rare in winter
White-crowned Sparrow	W	D		F					●				
White-throated Sparrow	W	D		F					●				
Fox Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

14 — FOREST AND FIELD EDGE — The forest "edge" can be abrupt or gradual, displaying many kinds and forms of plants.

The kinds of plants vary greatly depending on the site, use of the field, and denseness of the forest border.

14 FOREST AND FIELD EDGE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		X		N					●		Large cavity
Black Vulture	S	E		F							●		
Sharp-shinned Hawk	R	E		F		N					●		
Cooper's Hawk	R	D		F		N					●		
Red-tailed Hawk	R	C		F		N					●		
Rough-legged Hawk	W	D		F							●		
Golden Eagle	W	E		F							●		
American Kestrel	R	C		F		N				●	●		Cavity nester
Bobwhite	R	A		X					●	●			
Mourning Dove	R	C		F		N			●	●			
Yellow-billed Cuckoo	S	C			X	F				●			
Black-billed Cuckoo	S	E			X	F				●			
Barn Owl	R	D		F		N					●		Cavity nester
Screech Owl	R	C		F		N					●		Cavity nester
Great Horned Owl	R	C		F		N					●		Cavity nester
Barred Owl	R	C		F		N					●		Cavity nester
Chuck-will's-widow	S	D		N				F		●			
Whip-poor-will	S	C		N				F		●			
Ruby-throated Hummingbird	S	C		F	F	N						●	
Common Flicker	R	C		F		N				●			Cavity excavator

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

14 FOREST AND FIELD EDGE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Red-bellied Woodpecker	R	D				N	F			●			Cavity excavator
Red-headed Woodpecker	R	C				N	F			●			Cavity excavator
Yellow-bellied Sapsucker	W	C					F					●	
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Kingbird	S	B				N		F		●			
Scissor-tailed Flycatcher	S	D				N		F		●			
Great Crested Flycatcher	S	D				N		F		●			Cavity nester
Eastern Phoebe	S	C						F		●			Nest on beams of old buildings
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	B		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C			F	X	F		●	●			Cavity nester
Tufted Titmouse	R	C			F	X			●	●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity user
House Wren	S	C		F	X					●			Cavity user
Bewick's Wren	S	D		F	X					●			
Carolina Wren	S	D		F	X					●			Cavity user
Mockingbird	R	B			X					●			
Gray Catbird	S	C			X					●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

14 FOREST AND FIELD EDGE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Brown Thrasher	R	C		F	X					●			Rare in winter
American Robin	R	C		F		N				●			Rare in winter
Eastern Bluebird	R	D		F	F	N				●			Cavity user
Blue-gray Gnatcatcher	S	C			X	X				●			
Golden-crowned Kinglet	W	D				F				●			
Ruby-crowned Kinglet	W	D				F				●			
Loggerhead Shrike	R	C		F	X				●	●			
White-eyed Vireo	S	C			X					●			
Yellow-throated Vireo	S	D			X					●			
Black-and-white Warbler	S	C		N			F			●			
Blue-winged Warbler	S	C		N		F				●			
Northern Parula Warbler	S	D			N	X				●			Prefers low, wet areas
Yellow-rumped Warbler	W	C		F	F	F			●	●			
Chestnut-sided Warbler	S	E			N	F				●			Mostly migrant
Common Yellowthroat	S	C		X	F					●			
Yellow-breasted Chat	S	C		F	X					●			
Orchard Oriole	S	B			N	X				●			
Common Grackle	R	B		F	X	X			●	●			
Brown-headed Cowbird	R	B		F	N	N			●	●			Parasitic nester
Cardinal	R	B		F	X				●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

14 FOREST AND FIELD EDGE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Rose-breasted Grosbeak	S	D		F	N				●	●			Northern Ozarks only
Blue Grosbeak	S	B			X				●				
Indigo Bunting	S	A		F	N				●	●			
Painted Bunting	S	E		F	X				●	●			Extreme southern Missouri
Evening Grosbeak	W	D				F			●				
Purple Finch	W	D				F			●				
Pine Siskin	W	D			F	F			●				
American Goldfinch	R	C		X					●	●			
Rufous-sided Towhee	R	B			X				●	●			Rare in winter
Dark-eyed Junco	W	A		F					●				
Tree Sparrow	W	C		F					●				
Chipping Sparrow	S	C		F	N				●	●			Grazed field
Field Sparrow	R	A		X	F				●	●			Rare in winter
Harris Sparrow	W	D		F					●				
White-crowned Sparrow	W	C		F					●				
White-throated Sparrow	W	C		F					●				
Fox Sparrow	W	C		F					●				Low areas
Swamp Sparrow	W	D		F					●	●			Low areas
Song Sparrow	R	D		X					●	●			Mostly winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

15 — GLADES — Glades are natural openings occurring on stony and shallow limestone soils. Plants associated with the glades are the grasses: baldgrass, side oats grama, switchgrass, and little bluestem. Other plants include various prairie forbs (prairie clover, indigo, coneflower, and black-eyed susan) and invading woody species (fragrant sumac, persimmon, and redcedar). Woody plants cover less than 30 percent of the area overhead.

Granite and sandstone glades also occur but they are generally smaller than the limestone glades. The glade communities vary greatly in size, amount and kind of woody cover, direction and steepness of slope, and lushness of herbaceous vegetation.

15 GLADES

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		X		N						●	Cavity or rock ledge for nest
Black Vulture	S	E		F								●	
Red-tailed Hawk	R	B		F		N					●		
Broad-winged Hawk	S	D		F							●		
Turkey	R	D		X					●	●			More on granite glades
Killdeer	S	C		X						●			Rare in winter
Mourning Dove	R	C		F		N			●				
Roadrunner	R	E		X	F				●	●	●		
Whip-poor-will	S	C		N				F		●			
Common Nighthawk	S	C		N				F		●			
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Kingbird	S	C				N		F		●			
Horned Lark	R	D		X					●	●			
Blue Jay	R	B			F	X			●	●			
Carolina Chickadee	R	C			F	X	F		●	●			Cavity user
Tufted Titmouse	R	C			F	X			●	●			Cavity user
Black-and-white Warbler	S	C		N			F			●			
Prairie Warbler	S	B			X	X				●			
Brown-headed Cowbird	R	B		F	N					●			Parasitic nester

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]*Forage (F); Nest (N); Both Forage and Nest in same level (X).*

15 GLADES

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Cardinal	R	B		F	X				●				
Blue Grosbeak	S	C			X				●				
Indigo Bunting	S	B		F	N				●	●			
Lark Sparrow	S	C		X						●			
Bachman's Sparrow	S	E		X	F				●	●			
Field Sparrow	S	C		X	F				●	●			Rare in winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]*Forage (F); Nest (N); Both Forage and Nest in same level (X).*

16 — EASTERN REDCEDAR — The redcedar type occurs in openings on dry, stony, limestone soils or old fields. Areas are more than 30 percent covered by redcedar. The cedars dominate the site; ground cover is sparse under the cedars with a few species of perennial grasses (panic grass, little bluestem) and forbs remaining.

16 EASTERN REDCEDAR

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		F		N						●	Large cavity or rock ledge for nest
Black Vulture	S	E		F								●	
Red-tailed Hawk	R	C		F		N					●		
Broad-winged Hawk	S	D		F							●		
Mourning Dove	R	C		F		N			●				
Yellow-billed Cuckoo	S	C			X	F				●			
Roadrunner	R	E		X					●	●	●		
Screech Owl	R	D		F		N					●		Cavity user
Saw-whet Owl	W	E		F							●		
Chuck-will's-widow	S	E		N				F		●			
Whip-poor-will	S	D		N				F		●			
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Great Crested Flycatcher	S	C				N		F		●			Cavity user
Eastern Wood Pewee	S	D				N		F		●			
Blue Jay	R	B		F	F	X			●	●			
Carolina Chickadee	R	C			F	X	F		●	●			Cavity user
Tufted Titmouse	R	C			F	X			●	●			Cavity user
Mockingbird	R	D			X	X				●			
Gray Catbird	S	D			F	X				●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Brown Thrasher	S	C			X					●			Rare in winter
American Robin	W	B			F				●				Feed on cedar berries
Hermit Thrush	W	D		F					●				
Blue-gray Gnatcatcher	S	C			X	X				●			
Golden-crowned Kinglet	W	D			F	F				●			
Ruby-crowned Kinglet	W	D			F	F				●			
Cedar Waxwing	W	D				F			●				
Black-and-white Warbler	S	C		N			F			●			
Yellow-rumped Warbler	W	D		F	F					●			
Prairie Warbler	S	B			X	X				●			Open stands
Brown-headed Cowbird	R	C		F	N	N				●			Parasitic nester
Cardinal	R	A		F	X	F			●				
Blue Grosbeak	S	C		X					●				
Indigo Bunting	S	C		F	N				●	●			
Painted Bunting	S	E			X	X			●	●			
American Goldfinch	R	C		X					●				
Lark Sparrow	S	D		X					●				Bare ground areas
Field Sparrow	S	D		X	F				●	●			Open stands

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

21 — OAK-HICKORY REGENERATION (HERBACEOUS STAGE) — Forested stands that have been clearcut within the last three years. These stands have many dead and decaying tops and stumps.

Woody plants and herbs vary with site. Woody plants may include various species of oak, hickory, dogwood, sassafras, plum, hazel, blackberry, and sumac. Ground flora usually include sunflowers, aster, pussy toes, thistle, dittany, lespedeza, desmodium, carex, and panic grasses.

There are 3 layers of vegetation; a grass-forb ground flora, scattered shrubs, with a few small trees.

21 OAK-HICKORY REGENERATION (Herbaceous Stage)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		X		N						●	Cavity user
Ruffed Grouse	R	E		X	F				●				
Mourning Dove	R	C		F		N			●				
Ruby-throated Hummingbird	S	C		F	F	N						●	
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Carolina Wren	R	D		F	X					●			Cavity nester
Gray Catbird	S	D			X					●			
Brown Thrasher	R	D			X					●			Rare in winter
White-eyed Vireo	S	B			X					●			
Black-and-white Warbler	S	D		N			F			●			
Yellow-rumped Warbler	W	C		F					●	●			
Chestnut-sided Warbler	S	E			N	F				●			Mostly migrant
Prairie Warbler	S	C			X					●			
Common Yellowthroat	S	C		X	F					●			
Yellow-breasted Chat	S	B		F	X					●			
Brown-headed Cowbird	R	B		F	N				●	●			Parasitic nester
Blue Grosbeak	S	C			X				●				
Indigo Bunting	S	A		F	N				●	●			Near edge
American Goldfinch	R	B		X	F				●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

21 OAK-HICKORY REGENERATION (Herbaceous Stage)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Rufous-sided Towhee	R	A		F	X				●	●			Rare in winter
Lark Sparrow	S	D		X						●			
Bachman's Sparrow	S	E		X	F				●	●			
Dark-eyed Junco	W	C		F					●				
Tree Sparrow	W	C		F					●				
Field Sparrow	S	B		X	F				●	●			Rare in winter
White-throated Sparrow	W	D		F					●				
Fox Sparrow	W	D		F					●				
Swamp Sparrow	W	E		F					●	●			
Song Sparrow	R	D		X					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

22 — OAK-HICKORY REGENERATION (SHRUB-SEEDLING STAGE, STEMS LESS THAN 3 INCHES IN DIAMETER) — Forested stands that were clearcut 5-10 years ago. The many stems of per acre of woody plants nearly cover the area.

The species of oak and hickory that predominate depend on the site. Some sun-loving species such as sassafras, plum, and persimmon remain.

There is essentially one layer of vegetation — trees.

22 OAK-HICKORY REGENERATION
(Shrub-Seedling Stage, Stems Less Than 3 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Ruffed Grouse	R	E		X	F				●				
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Blue Jay	R	B		F	F	X			●	●			
Gray Catbird	S	D			X					●			
Brown Thrasher	R	C		F	X					●			Rare in winter
Wood Thrush	S	C		F	N					●			
White-eyed Vireo	S	C			X					●			
Black-and-white Warbler	S	D		N			F			●			
Worm-eating Warbler	S	D		X						●			Steep slopes
Blue-winged Warbler	S	C		N		F				●			
Yellow-rumped Warbler	W	D				F				●			
Kentucky Warbler	S	C			X					●			
Yellow-breasted Chat	S	D		F	X					●			Prefers shorter brush
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Summer Tanager	S	C			N	X				●			
Cardinal	R	C			X				●				
Indigo Bunting	S	D		F	N				●	●			Near edge
Rufous-sided Towhee	R	B		F	X				●	●			Rare in winter
White-throated Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

22 OAK-HICKORY REGENERATION
(Shrub-Seedling Stage, Stems Less Than 3 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Fox Sparrow	W	D		F					●				
Song Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

23 — IMMATURE OAK-HICKORY (POLES AND SAPLINGS, 3-9 INCHES IN DIAMETER) — Dense stands of oak and hickory poles. The kinds of plants and which ones dominate vary with soil, slope, and topographic position.

Shrub and ground flora usually sparse to absent.

These stands are nearly uniform in height.

23 IMMATURE OAK-HICKORY (Poles and Saplings 3-9 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Ruffed Grouse	R	E		X	F				●				
Yellow-billed Cuckoo	S	C			X	F				●			
Whip-poor-will	S	D		N				F		●			
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Red-headed Woodpecker	R	C				N	F			●			Prefers abundant dead wood
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Blue Jay	R	B		F	F	X			●	●			
Carolina Chickadee	R	C			F	X	F		●	●			Cavity user
Tufted Titmouse	R	C			F	X			●	●			Cavity user
White-breasted Nuthatch	R	D				N	F			●			Cavity user
Brown Creeper	W	D					F			●			
Hermit Thrush	W	D		F					●				
Blue-gray Gnatcatcher	S	C			N	F				●			
Red-eyed Vireo	S	C				X				●			
Warbling Vireo	S	D				X				●			More common near streams
Black-and-white Warbler	S	C		N			F			●			
Blue-winged Warbler	S	D		N		F				●			Prefers edge
Yellow-rumped Warbler	W	D			F	F			●	●			
Cerulean Warbler	S	C			N	F				●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

23 IMMATURE OAK-HICKORY (Poles and Saplings 3-9 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Ovenbird	S	C		X						●			
Hooded Warbler	S	E			X					●			
American Redstart	S	D			N	X		F		●			Prefers bottomland forests
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Summer Tanager	S	C			N	X				●			
Cardinal	R	C			X				●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

24 — MATURE OAK-HICKORY (OPEN UNDERGROWTH) — Overstory trees usually include mixtures of black, white, and post oaks with hickories. Occasionally pure stands of black, white, or post oak are found. These are dense stands with closed canopies growing on dry sites such as ridges and south and west slopes.

Mid-story plants are sparse to non-existent.

Ground plants are normally sparse and include goat's-rue, dittany, cinquefoil, American fever few, woody betony, lespedeza, little bluestem, panic grass, and sorrel.

24 MATURE OAK-HICKORY (Open Undergrowth)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Sharp-skinned Hawk	R	E		F		N		F			●		Prefers conifers
Cooper's Hawk	R	D		F		N		F			●		Prefers conifers
Broad-winged Hawk	S	D		F		N					●		
Ruffed Grouse	R	E		X	F				●				
Turkey	R	C		X					●	●			
Yellow-billed Cuckoo	S	C			F	X				●			
Black-billed Cuckoo	S	D			F	X				●			
Schreech Owl	R	D		F		N					●		Cavity nester
Great Horned Owl	R	D		F		N					●		Prefers cavities for nesting
Barred Owl	R	E		F		N					●		Cavity nester
Chuck-will's-widow	S	E		N				F		●			
Whip-poor-will	S	C		N				F		●			
Pileated Woodpecker	R	D				N	F			●			Cavity excavator
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Red-headed Woodpecker	R	D				N	F			●			Cavity excavator
Great Crested Flycatcher	S	C				N		F		●			Cavity nester
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	C		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C				X				●			Cavity nester

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

24 MATURE OAK-HICKORY (Open Undergrowth)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Tufted Titmouse	R	A				X				●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
Wood Thrush	S	C		F	N					●			
Blue-gray Gnatcatcher	S	C			N	F				●			
Yellow-throated Vireo	S	E			X					●			
Red-eyed Vireo	S	B				X				●			
Warbling Vireo	S	D				X				●			More common near streams
Black-and-white Warbler	S	C		N			F			●			
Worm-eating Warbler	S	C		X						●			Steep slopes
Ovenbird	S	C		X						●			
Kentucky Warbler	S	D			X					●			
Hooded Warbler	S	D			X					●			
American Redstart	S	D			N	X		F		●			More common near streams
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Scarlet Tanager	S	C		F		N				●			
Summer Tanager	S	B			N	X		F		●			
Cardinal	R	C			X				●				
Pine Siskin	W	D				F			●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

25 — MATURE OAK-HICKORY (DENSE UNDERGROWTH) — Overstory trees vary from mixtures of black, northern, and white oak, and hickory to nearly pure stands of white oak, northern red oak, and black oak.

Mid-story plants are representative of shade tolerant species such as flowering dogwood, ironwood, white oak, black gum, and sugar maple.

Ground plants usually include Virginia creeper, various species of beggar tick, gallium, avens, and false solomon's seal.

25 MATURE OAK-HICKORY (Dense Undergrowth)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Sharp-shinned Hawk	R	E		F		N		F			●		
Broad-winged Hawk	S	D		F		N					●		
Ruffed Grouse	R	E		X	F				●				
Turkey	R	C		X					●	●			
Yellow-billed Cuckoo	S	C			X	F				●			
Black-billed Cuckoo	S	D			X	F				●			
Pileated Woodpecker	R	E				X	F			●			Cavity excavator
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Hairy Woodpecker	R	C				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Great Crested Flycatcher	S	B				N		F		●			Cavity nester
Acadian Flycatcher	S	D				N		F		●			Prefers streamside trees
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	C			F	X			●	●			
Carolina Chickadee	R	D			F	X	F			●			Cavity nester
Tufted Titmouse	R	B			F	X			●	●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
Winter Wren	W	D			F					●			
Carolina Wren	R	C			F	X				●			Cavity nester

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

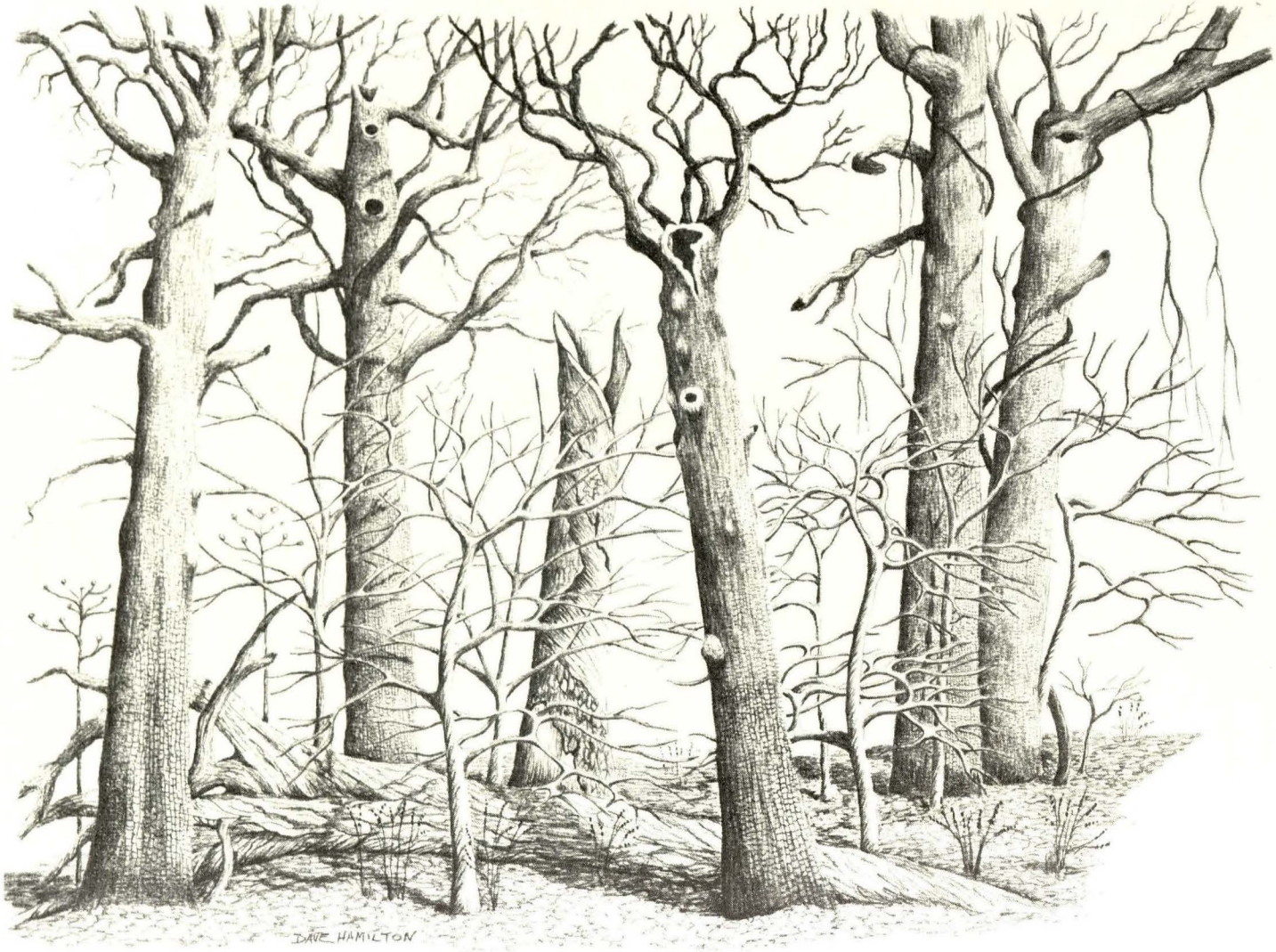
25 MATURE OAK-HICKORY (Dense Undergrowth)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Wood Thrush	S	C		F	N					●			
Hermit Thrush	W	D		F					●	●			
Blue-gray Gnatcatcher	S	C			X	F				●			
Yellow-throated Vireo	S	E			X					●			
Red-eyed Vireo	S	A				X				●			
Warbling Vireo	S	D				X				●			More common near streams
Black-and-white Warbler	S	C		N			F			●			
Worm-eating Warbler	S	C		X						●			Steep slopes
Northern Parula Warbler	S	D			N	X				●			Prefers bottomland forests
Ovenbird	S	B		X						●			
Kentucky Warbler	S	B			X					●			
Hooded Warbler	S	D			X					●			
American Redstart	S	D			N	X		F		●			More common near streams
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Scarlet Tanager	S	C		F		N				●			
Summer Tanager	S	B			N	X		F		●			
Cardinal	R	C			X				●				
Pine Siskin	W	D				F			●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).



26 — OLD-GROWTH OAK-HICKORY — Stands that are usually more than 100 years old. The kinds of trees and plants found here vary, depending on soil, slope, and topographic position.

Depending on the site, these stands usually vary a lot in height, contain some trees with cavities, and have occasional snags. Ground plants are fairly numerous.

26 OLD-GROWTH OAK-HICKORY

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		X		N						●	Cavity nester
Goshawk	W	E		F				F			●		
Sharp-shinned Hawk	R	E		F		N					●		
Cooper's Hawk	R	E		F		N					●		
Red-tailed Hawk	R	C		F		N					●		
Red-shouldered Hawk	R	E		F		N					●		
Broad-winged Hawk	S	D		F		N					●		
American Kestrel	R	D		F		N		F			●		*Cavity nester*
Turkey	R	C		X					●	●			
Yellow-billed Cuckoo	S	C			F	X				●			
Black-billed Cuckoo	S	D			F	X				●			
Barn Owl	R	E		F		N					●		*Cavity nester*
Screech Owl	R	D		F		N					●		Cavity nester
Great Horned Owl	R	D		F		N					●		Cavity nester
Barred Owl	R	D		F		N					●		*Cavity nester*
Saw-whet Owl	W	E		F							●		
Chuck-will's-widow	S	D		N				F		●			
Whip-poor-will	S	C		N				F		●			
Chimney Swift	S	D				N		F		●			Cavity nester
Common Flicker	R	C		F		N				●			Cavity excavator

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

26 OLD-GROWTH OAK-HICKORY

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Pileated Woodpecker	R	D				N	F			●			Cavity excavator
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator
Red-headed Woodpecker	R	C				N	F		●	●			Cavity excavator
Yellow-bellied Sapsucker	W	D					F					●	*Cavity excavator*
Hairy Woodpecker	R	C				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Great Crested Flycatcher	S	C				X		F		●			Cavity nester
Eastern Phoebe	S	C						F		●			Nests on buildings, bridges, cliffs
Acadian Flycatcher	S	D				N		F		●			Prefers streamside trees
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	B		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C			F	X	F			●			Cavity nester
Tufted Titmouse	R	B			F	X				●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
House Wren	S	D			F	N				●			Cavity nester
Winter Wren	W	D			F					●			
Carolina Wren	R	D			X					●			Cavity nester
Brown Thrasher	R	D		F	X				●	●			Rare in winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

26 OLD-GROWTH OAK-HICKORY

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Wood Thrush	S	C		F	N					●			
Hermit Thrush	W	D		F	F				●	●			
Eastern Bluebird	R	D		F		N		F		●			Cavity nester
Blue-gray Gnatcatcher	S	C			F	X				●			
Cedar Waxwing	W	D			F				●				
Yellow-throated Vireo	S	D			F	X				●			
Red-eyed Vireo	S	A				X				●			
Warbling Vireo	S	D				X				●			
Black-and-white Warbler	S	C		N			F			●			
Worm-eating Warbler	S	C		X						●			Steep slope
Northern Parula Warbler	S	C			N	X				●			Prefers low, wet areas
Yellow-rumped Warbler	W	D		F	F					●			
Cerulean Warbler	S	C			N	X				●			
Yellow-throated Warbler	S	D			N	X				●			
Ovenbird	S	B		X						●			
Kentucky Warbler	S	B			X					●			
Hooded Warbler	S	D			X					●			
Orchard Oriole	S	D			N	X				●			
Northern Oriole	S	B				X				●			
Common Grackle	R	D		F		X			●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

26 OLD-GROWTH OAK-HICKORY

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Scarlet Tanager	S	C		F		N				●			
Summer Tanager	S	C			N	X		F		●			
Cardinal	R	D			X				●				
Purple Finch	W	D				F			●				
Pine Siskin	W	D				F			●				
Chipping Sparrow	S	D		F	N				●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

31 — SHORTLEAF PINE REPRODUCTION (0-3 INCHES IN DIAMETER) — The seed trees that are often left standing make these stands more diverse.

The density of shortleaf pine seedlings varies appreciably. Deciduous species occurring with the pine are sassafras, hickory, various species of oak, dogwood, plum, hawthorne, and black gum.

The ground plants may include blackberry, sumac, gooseberry, poison ivy, pussy toes, dittany, sunflower, poverty oat grass, panic grass, carex, and little bluestem.

31 SHORTLEAF PINE REPRODUCTION (0-3 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	S	C		X		N						•	Cavity nester
Bobwhite	R	C		X					•	•			
Mourning Dove	R	C		F	N	N			•				
Common Nighthawk	S	D		N				F		•			
Ruby-throated Hummingbird	S	D		F	N							•	
Common Flicker	R	C		F						•			Nest if snags are present
Yellow-bellied Sapsucker	W	C					F					•	
Hairy Woodpecker	R	D				N	F			•			Cavity excavator
Downy Woodpecker	R	D				N	F			•			Cavity excavator
Common Crow	R	C		F		N			•				Primarily a feeding area
Gray Catbird	S	C		F	X					•			
Brown Thrasher	R	C		F	X					•			Rare in winter
White-eyed Vireo	S	C			X					•			
Prairie Warbler	S	C			X					•			
Common Yellowthroat	S	C		N	F					•			
Yellow-breasted Chat	S	B		F	X					•			
Brown-headed Cowbird	R	C		F	N				•	•			Parasitic nester
Blue Grosbeak	S	D			X				•				
American Goldfinch	R	C		X	F				•	•			Rare in winter
Rufous-sided Towhee	R	B		F	N				•	•			Rare in winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

31 SHORTLEAF PINE REPRODUCTION (0-3 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Lark Sparrow	S	D		X						•			
Bachman's Sparrow	S	E		X						•			
Dark-eyed Junco	W	C		F					•				
Tree Sparrow	W	D		F					•				
Field Sparrow	R	C		X	N					•			Rare in winter
White-throated Sparrow	W	D		F					•				
Fox Sparrow	W	D		F					•				
Swamp Sparrow	W	D		F					•				
Song Sparrow	W	D		F					•				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

32 — IMMATURE SHORTLEAF PINE (3-9 INCHES IN DIAMETER) — Shortleaf pine stands of this size are usually dense with tree tops touching.

Small trees and shrubs are sparse to non-existent.

Ground plants are equally limited because of the shade and thick bed of needles.

32 IMMATURE SHORTLEAF PINE (3-9 Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Saw-whet Owl	W	E		F							●		
Chuck-will's-widow	S	E		N				F		●			
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Blue Jay	R	C			F	X			●	●			
Tufted Titmouse	R	C				X				●			Cavity nester
White-breasted Nuthatch	R	D				N	F			●			Cavity nester
Red-breasted Nuthatch	W	D					F			●			Cavity user
Brown-headed Nuthatch	R	E				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
Winter Wren	W	D			F					●			
Golden-crowned Kinglet	W	D				F				●			
Ruby-crowned Kinglet	W	D				F				●			
Blue-winged Warbler	S	C		N	F	F				●			
Yellow-breasted Chat	S	C		F	X					●			
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Cardinal	R	C		F	X				●	●			
Evening Grosbeak	W	D				F			●				
Pine Siskin	W	D				F			●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

33 — MATURE SHORTLEAF PINE (9+ INCHES IN DIAMETER) — Sawlog-size shortleaf pine has usually been thinned two or three times. The amount and kind of undergrowth depends on the basal area[2] and site characteristics such as soil depth and steepness of slope. Tree heights are very uniform

[2]*Basal area is the total cross-sectional area of all the trees growing on a given area of land. This is a standard measure of density of forests.*

33 MATURE SHORTLEAF PINE (9+ Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Sharp-shinned Hawk	R	D				N		F			●		
Cooper's Hawk	R	D				N		F			●		
Broad-winged Hawk	S	D		F		N					●		
Turkey	R	C		X					●	●			
Yellow-billed Cuckoo	S	C			X	X				●			
Screech Owl	R	D		F		N					●		Cavity nester
Great Horned Owl	R	C		F		N					●		
Barred Owl	R	D		F		N					●		Cavity nester
Long-eared Owl	W	D		F							●		
Saw-whet Owl	W	D		F							●		
Chuck-will's-widow	S	D		N				F		●			
Whip-poor-will	S	C		N				F		●			
Pileated Woodpecker	R	E				N	F			●			Cavity excavator
Red-bellied Woodpecker	R	D				N	F			●			Cavity excavator
Yellow-bellied Sapsucker	W	D					F					●	
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	C		F		X			●	●			
Common Crow	R	C		F		N			●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

33 MATURE SHORTLEAF PINE (9+ Inches in Diameter)

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Carolina Chickadee	R	D				X				●			Cavity user
Tufted Titmouse	R	B				X				●			Cavity user
White-breasted Nuthatch	R	C				N	F			●			Cavity user
Red-breasted Nuthatch	W	C					F			●			
Brown-headed Nuthatch	R	E				N	F			●			Cavity user
Brown Creeper	W	D					F			●			
Winter Wren	W	D			F					●			
Carolina Wren	R	D			X	N				●			Cavity user
Golden-crowned Kinglet	W	D				F				●			
Ruby-crowned Kinglet	W	D				F				●			
Yellow-throated Vireo	S	E				X				●			
Red-eyed Vireo	S	B				X				●			
Black-and-white Warbler	S	C		N		F				●			
Northern Parula Warbler	S	C			N	X				●			Prefers low, wet areas
Yellow-throated Warbler	S	D				X				●			
Pine Warbler	S	C			N	X				●			Rare in winter
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Cardinal	R	C		F	X				●				
Pine Siskin	W	D			F	F			●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

34 — OLD-GROWTH SHORTLEAF PINE — Stands of nearly pure pine that are 90 years of age or older.

The crowns of these old, large trees are usually farther apart than in younger stands allowing a well developed understory. Hickory, various species of oak, dogwood, and sassafras are often found in the mid-story. Common shrubs include sumac and huckleberry.

Ground plants include such plants as pussy toes, American fever few, lespedeza, sedges, and little bluestem.

There is usually a wide range of tree heights and an appearance of "layering" in old growth pine stands.

34 OLD-GROWTH SHORTLEAF PINE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	R	D		F		N						●	Cavity nester
Black Vulture	R	D		F		N						●	Cavity nester
Goshawk	W	E		F				F			●		
Sharp-shinned Hawk	R	D		F		N		F			●		
Cooper's Hawk	R	D		F		N		F			●		
Red-shouldered Hawk	R	D		F		N					●		Prefers streamside trees for nests
Broad-winged Hawk	S	D		F	N						●		
American Kestrel	R	D		F		N				●	●		Cavity nester
Turkey	R	C		X					●	●			
Yellow-billed Cuckoo	S	C			X	X				●			
Screech Owl	R	E		F		N					●		Cavity nester
Great Horned Owl	R	D		F		N					●		
Barred Owl	R	E		F		N					●		Cavity nester
Long-eared Owl	W	E		F							●		
Saw-whet Owl	W	E		F							●		
Whip-poor-will	S	D		N				F		●			
Chimney Swift	S	D				N		F		●			Cavity nester
Common Flicker	R	C		F		N				●			Cavity excavator
Pileated Woodpecker	R	D				N	F			●			Cavity excavator
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

34 OLD-GROWTH SHORTLEAF PINE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Red-headed Woodpecker	R	C				N	F		●	●			Cavity excavator
Yellow-bellied Sapsucker	W	D					F					●	
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Red-cockaded Woodpecker	R	E				N	F			●			Cavity excavator
Great Crested Flycatcher	S	C				N		F		●			Cavity nester
Eastern Wood Pewee	S	C				N		F		●			
Blue Jay	R	C		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	D				X	F			●			Cavity nester
Tufted Titmouse	R	B			F	X				●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity nester
Red-breasted Nuthatch	W	D					F			●			Cavity user
Brown-headed Nuthatch	R	E				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
Winter Wren	W	D			F					●			
Carolina Wren	R	D			X	N				●			Cavity nester
Brown Thrasher	R	D		F	X					●			Rare in winter
Golden-crowned Kinglet	W	D				F				●			
Ruby-crowned Kinglet	W	D				F				●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

34 OLD-GROWTH SHORTLEAF PINE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Yellow-throated Vireo	S	E				X				•			
Red-eyed Vireo	S	D				X				•			
Black-and-white Warbler	S	C		N		F				•			
Northern Parula Warbler	S	C			N	X				•			
Yellow-rumped Warbler	W	C		F	F				•	•			
Pine Warbler	S	C			N	X				•			Rare in winter
Brown-headed Cowbird	R	C		F	N	N			•	•			Parasitic nester
Cardinal	R	D		X	X				•				
Purple Finch	W	D				F			•				
Pine Siskin	W	D				F			•				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 — WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS — A woodland habitat within the floodplain of a stream. The plants found depend on the development and maturity of the stream. Small and youthful streams have willow, witch-hazal, alder, sycamore, sandgrape, and ninebark nearby. Farther away from the margin of the stream on the alluvial deposits are cottonwood, silver maple, and green ash. Older and more mature streams are bordered by elm, green ash, sycamore, and sugar maple. Other trees and shrubs found in the last stage are black walnut, sourgum, butternut, honeylocust, bur oak, hophornbeam, elderberry, blackhaw, moonseed, and buckeye. This is a highly productive and diverse habitat.

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Great Blue Heron	S	D	F			N					•		
Green Heron	S	C	F			N					•		
Great Egret	S	E	F								•		
Mallard.	R	C	F	X					•	•			Rare in summer
Wood Duck	R	C	F			N			•	•			Cavity nester
Common Goldeneye	W	D	F							•			
Hooded Merganser	S	D	F			N				•	•		Cavity nester
Turkey Vulture	R	C		X		N						•	Cavity nester
Black Vulture	S	E		X		N						•	
Sharp-shinned Hawk	R	E		F		N		F			•		
Cooper's Hawk	R	E		F		N		F			•		
Red-tailed Hawk	R	C		F		N					•		
Red-shouldered Hawk	R	D		F		N					•		Preferred habitat
Broad-winged Hawk	S	D		F		N					•		
Golden Eagle	W	E		F							•		
Bald Eagle	W	E	F	F							•		
Osprey	S	E	F			N					•		Potential nester
American Kestrel	R	D		F		N		F			•		Cavity nester
Ruffed Grouse	R	E		X					•	•			
American Woodcock	S	C		X						•			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Spotted Sandpiper	S	C	F	N						•			
Herring Gull	W	D	F							•			
Ring-billed Gull	W	D	F							•			
Mourning Dove	R	C		F	N	N			•				
Yellow-billed Cuckoo	S	C			X	X				•			
Black-billed Cuckoo	S	D			X	X				•			
Screech Owl	R	D		F		N					•		Cavity nester
Great Horned Owl	R	D		F		N					•		
Barred Owl	R	D		F		N					•		Cavity nester
Chuck-will's-widow	S	D		N				F			•		
Whip-poor-will	S	C		N				F			•		
Ruby-throated Hummingbird	S	C		F	F	N						•	
Belted Kingfisher	R	B	F	N							•		Mud bank nester
Common Flicker	R	C		F		N					•		Cavity excavator
Pileated Woodpecker	R	D				N	F				•		Cavity excavator
Red-bellied Woodpecker	R	C				N	F				•		Cavity excavator
Red-headed Woodpecker	R	C				N	F				•		Cavity excavator
Yellow-bellied Sapsucker	W	C					F					•	Cavity user
Hairy Woodpecker	R	C				N	F				•		Cavity excavator
Downy Woodpecker	R	C				N	F				•		Cavity excavator

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Eastern Kingbird	S	C				N		F		●			
Great Crested Flycatcher	S	C				N		F		●			Cavity nester
Eastern Phoebe	S	C						F		●			Nests in buildings, bridges, caves
Acadian Flycatcher	S	C				N		F		●			Preferred habitat
Eastern Wood Pewee	S	C				N		F		●			
Tree Swallow	S	E				N		F		●			Cavity nester
Bank Swallow	S	C						F		●			Mud bank nester
Rough-winged Swallow	S	C						F		●			Rock face nester
Blue Jay	R	C		F	F	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	D			F	X	F			●			Cavity nester
Tufted Titmouse	R	C			F	X				●			Cavity nester
White-breasted Nuthatch	R	C				N	F			●			Cavity nester
Brown Creeper	W	D					F			●			
Winter Wren	W	D			F					●			
Bewick's Wren	S	D			F	X				●			Cavity nester
Carolina Wren	R	C			X	N				●			Cavity nester
Mockingbird	R	C		X	X				●	●			
Gray Catbird	S	C			X					●			
Brown Thrasher	R	C		F	X				●	●			Rare in winter

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
American Robin	R	C		F	N	N			●	●			
Wood Thrush	S	C		F	N					●			
Hermit Thrush	W	D		F					●	●			
Blue-gray Gnatcatcher	S	C			N	F				●			
Golden-crowned Kinglet	W	D				F				●			
Ruby-crowned Kinglet	W	D				F				●			
Cedar Waxwing	R	D			F	X			●				
Yellow-throated Vireo	S	D				X				●			
Red-eyed Vireo	S	A				X				●			
Warbling Vireo	S	C				X				●			Preferred habitat
Black-and-white Warbler	S	C			N	F	F			●			
Prothonotary Warbler	S	C				X				●			Cavity nester
Swainson's Warbler	S	E			F	N				●			Large canebreaks
Worm-eating Warbler	S	C				X				●			
Bachman's Warbler	S	E				N	F			●			May be extinct
Northern Parula Warbler	S	C				N	X			●			Preferred habitat
Yellow Warbler	S	C				N	F			●			
Yellow-rumped Warbler	W	C			F	F	F			●			
Cerulean Warbler	S	C				N	F			●			
Yellow-throated Warbler	S	D				N	X			●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Ovenbird	S	B		X						●			
Louisiana Waterthrush	S	C		X						●			
Kentucky Warbler	S	B			X					●			
Common Yellowthroat	S	C		N	F					●			
Hooded Warbler	S	D			X					●			
American Redstart	S	D			N	X		F		●			Preferred habitat
Red-winged Blackbird	R	B		X					●	●			
Orchard Oriole	S	C			N	X				●			
Northern Oriole	S	C			X	X				●			
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Brown-headed Cowbird	R	C		F	N	N			●	●			Parasitic nester
Scarlet Tanager	S	C		F		N				●			
Summer Tanager	S	C			N	X		F		●			
Cardinal	R	C			X				●				
Indigo Bunting	S	B		F	N				●	●			
American Goldfinch	R	D		X					●	●			More common in winter
Rufous-sided Towhee	R	B		F	X				●	●			Rare in winter
Harris Sparrow	W	D		F					●				
Swamp Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

41 WOODED STREAMSIDE AND BOTTOMLAND HARDWOODS

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Song Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

42 — WATERHOLE — Manmade ponds usually 1/10-acre or less and located in a wooded environment. They are primarily fishless, although some have been stocked with various species of fish. The dam and about an acre adjacent to the pond are maintained in an open to semi-open condition.

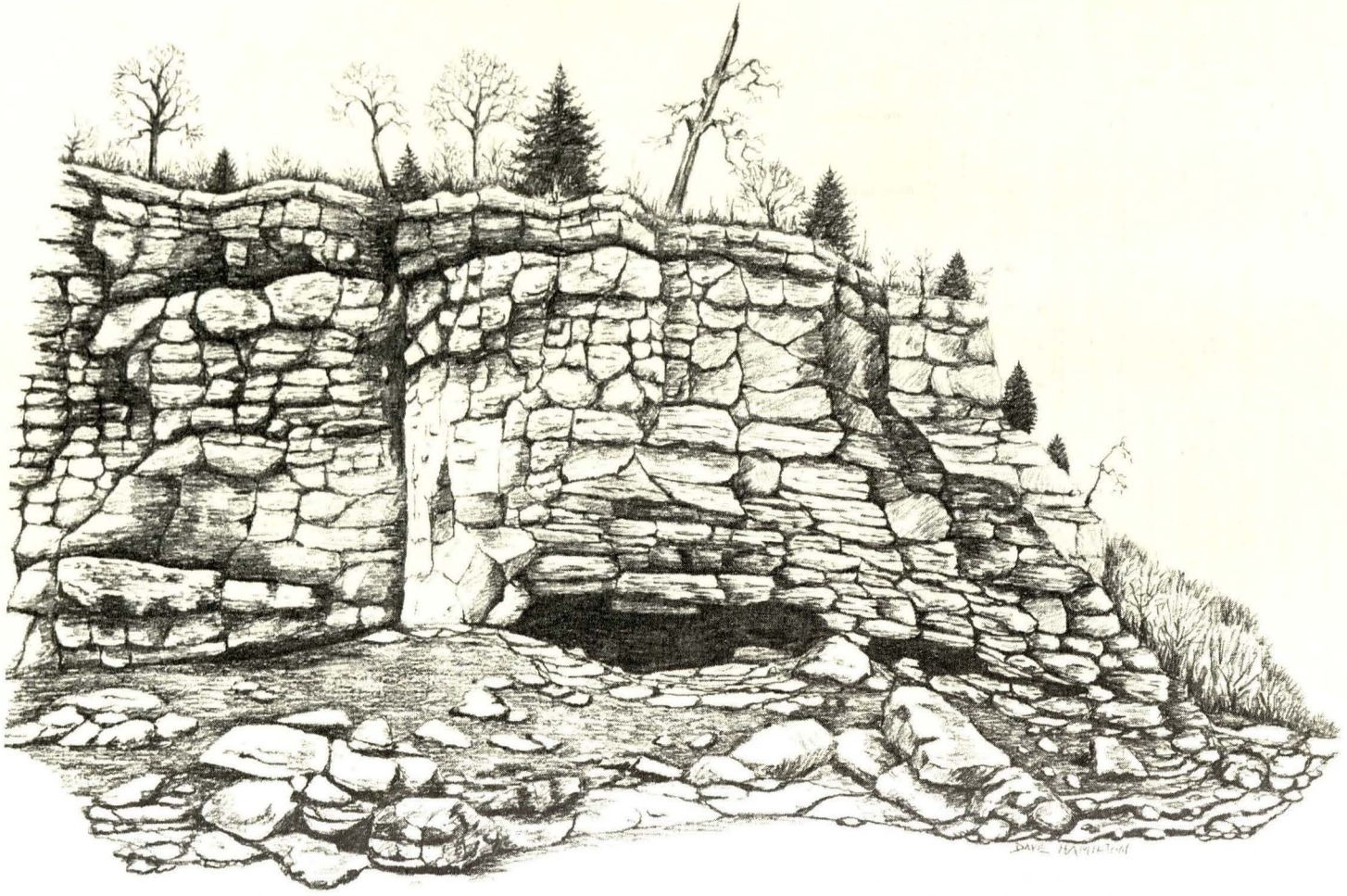
42 WATERHOLE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Killdeer	R	C		X						●			Rare in winter
Rough-winged Swallow	S	C						F		●			
Barn Swallow	S	C						F		●			Nests in buildings
Cliff Swallow	S	C						F		●			
Purple Martin	S	C				N		F		●			Cavity nester
Red-winged Blackbird	R	B		X					●	●			
Swamp Sparrow	W	D		F					●				
Song Sparrow	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).



51 — LIMESTONE BLUFF AND CAVE — Located along existing or old stream courses. Bluffs vary significantly by height, steepness, and associated plants.

Caves may be merely shallow overhangs to deep, long, underground caverns. The presence of water is important to animals.

51 LIMESTONE BLUFF AND CAVE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Turkey Vulture	R	C		X								●	Cliff nester
Black Vulture	S	D		X								●	Cliff nester
Golden Eagle	W	E		F							●		Perches on cliffs
Bald Eagle	W	E	F	F							●		Perches on cliffs
Peregrine Falcon	W	E						F			●		Historical nester
Merlin	W	E						F			●		Perches on cliffs
Rock Dove	R	C		X					●				Nests on buildings and cliffs
Great Horned Owl	R	D		F							●		Cliff nester
Barred Owl	R	D		F							●		Cliff nester
Eastern Phoebe	S	C		N				F		●			Nests in buildings, bridges, cliffs, etc.
Bank Swallow	S	C		N				F		●			Mud bank nester
Rough-winged Swallow	S	C		N				F		●			Cliff nester
Cliff Swallow	S	C		N				F		●			Cliff nester

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

52 — FARMYARD OR TOWN RESIDENCE — A small area or lot containing a house and some — but not necessarily all — of the following: trees, shrubs, lawn, flower garden, fence, hedge, barn, roadway, bird feeders, and nesting boxes.

52 FARMYARD OR TOWN RESIDENCE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Sharp-shinned Hawk	R	E				N		F			●		
Red-tailed Hawk	R	C		F		N					●		
Merlin	W	E						F			●		
American Kestrel	R	D		F		N		F			●		Cavity nester
Bobwhite	R	C		X					●	●			
Killdeer	R	C		X						●			Bare ground areas
Rock Dove	R	B		F					●				Nests on buildings
Mourning Dove	R	C		F	N	N			●				
Yellow-billed Cuckoo	S	C			X	X				●			
Black-billed Cuckoo	S	E			X	X				●			
Barn Owl	R	E		F		N					●		Cavity or building nester
Screech Owl	R	D		F		N					●		Cavity nester
Saw-whet Owl	W	D		F							●		
Whip-poor-will	S	C		N				F		●			
Common Nighthawk	S	B		N				F		●			Nests on ground or buildings
Chimney Swift	S	B						F		●			Nests in buildings
Ruby-throated Hummingbird	S	D		F	X							●	
Common Flicker	R	C		F		N				●			Cavity excavator
Pileated Woodpecker	R	D				N	F			●			Needs large snags
Red-bellied Woodpecker	R	C				N	F			●			Cavity excavator

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

52 FARMYARD OR TOWN RESIDENCE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Red-headed Woodpecker	R	C				N	F			●			Cavity excavator
Yellow-bellied Sapsucker	W	D					F					●	Cavity user
Hairy Woodpecker	R	D				N	F			●			Cavity excavator
Downy Woodpecker	R	C				N	F			●			Cavity excavator
Eastern Kingbird	S	C				N		F		●			
Eastern Phoebe	S	C						F		●			Nests on buildings, bridges, etc.
Horned Lark	R	D		X					●				
Barn Swallow	S	C						F		●			Nests on buildings
Purple Martin	S	C						F		●			Nests in birdhouses
Blue Jay	R	B		F	X	X			●	●			
Common Crow	R	C		F		N			●	●			
Carolina Chickadee	R	C				X				●			Cavity nester
Tufted Titmouse	R	C				X				●			Cavity nester
White-breasted Nuthatch	R	C				N	F		●	●			Cavity nester
Brown Creeper	W	D					F			●			
House Wren	S	B				F	N			●			Cavity nester (town)
Winter Wren	W	D				F	F			●			
Bewick's Wren	S	C				F	N			●			Cavity nester (farm)
Carolina Wren	R	D		F	X					●			Cavity nester
Mockingbird	R	B			X				●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

52 FARMYARD OR TOWN RESIDENCE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Gray Catbird	S	C			X					●			
Brown Thrasher	R	C			X				●	●			Rare in winter
American Robin	R	C		F		N			●	●			Eat berries in winter
Eastern Bluebird	R	D		F		N				●			Cavity nester
Cedar Waxwing	R	D			F	N			●				More common in winter
Loggerhead Shrike	R	C		F	N			F		●	●		
Starling	R	A		F		N			●	●			Cavity nester, prefers buildings
Warbling Vireo	S	C				X				●			
Yellow-rumped Warbler	W	D				F			●	●			
House Sparrow	R	A		F		N			●	●			Cavity nester, prefers buildings
Red-winged Blackbird	R	B		X					●	●			
Orchard Oriole	S	C			N	X				●			
Northern Oriole	S	C				X				●			
Rusty Blackbird	W	D		F					●				
Brewer's Blackbird	W	D		F					●				
Common Grackle	R	B		F	N				●	●			
Brown-headed Cowbird	R	B		F	N	N			●	●			Parasitic nester
Cardinal	R	B			X				●				
Rose-breasted Grosbeak	S	D			N	F			●	●			Northern Ozarks only
Evening Grosbeak	W	D		F					●				

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

52 FARMYARD OR TOWN RESIDENCE

Bird Species	Residence[1]	Abundance[2]	Forage and Nest Level[3]						Primary Foods				Notes
			WATER	HERB	SHRUB	TREE	BARK	AIR	SEEDS	BUGS	PREY	OTHER	
Purple Finch	W	D				F			●				
Pine Siskin	W	D				F			●				
American Goldfinch	R	C		X					●	●			
Dark-eyed Junco	W	B		F					●				
Tree Sparrow	W	D		F					●				
Chipping Sparrow	S	C		F	N				●	●			
White-throated Sparrow	W	C		F					●				
Song Sparrow	R	D		X					●	●			

[1]Residence: Permanent Resident (R); Summer Resident (S); and Winter Resident (W).

[2]Abundance: Abundant (A); Moderately Abundant (B); Common (C); Uncommon (D); Extremely Rare or Endangered (E).

[3]Forage (F); Nest (N); Both Forage and Nest in same level (X).

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number																											
	2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number																											
	01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Great Blue Heron																							x			
Green Heron																							x			
Great Egret																							x			
Canada Goose	x			x																						
Mallard	x																						x			
Wood Duck																							x			
Common Goldeneye																							x			
Hooded Merganser																							x			
Turkey Vulture	x	x	x	x	x	x		x		x	x	x	x					x	x			x	x		x	
Black Vulture	x			x	x			x		x	x	x										x	x		x	
Goshawk																		x				x				
Sharp-shinned Hawk								x	x	x						x	x	x			x	x	x			x
Cooper's Hawk								x	x	x						x		x			x	x	x			
Red-tailed Hawk	x	x	x	x	x	x	x	x	x	x	x	x						x					x			x
Red-shouldered Hawk																		x				x	x			
Broad-winged Hawk											x	x				x	x	x			x	x	x			
Rough-legged Hawk	x	x	x	x	x					x																
Golden Eagle	x				x					x													x		x	

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number: 2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number: 01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Bald Eagle																							x		x	
Marsh Hawk	x			x	x	x																				
Osprey																							x			
Peregrine Falcon																									x	
Merlin																									x	x
American Kestrel	x	x	x	x	x	x		x	x	x								x				x	x			x
Ruffed Grouse									x				x	x	x	x	x						x			
Bobwhite	x	x	x	x	x	x	x	x	x	x									x							x
Greater Prairie Chicken					x																					
Turkey			x		x				x		x					x	x	x			x	x				
Killdeer	x	x		x	x						x													x		x
American Woodcock						x	x																x			
Upland Sandpiper				x	x																					
Spotted Sandpiper																							x			
Herring Gull																							x			
Ring-billed Gull																							x			
Rock Dove	x																								x	x
Mourning Dove	x	x	x	x	x	x	x	x	x	x	x	x	x						x				x			x

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Species	Page number: 2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number: 01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Yellow-billed Cuckoo							x	x	x	x		x			x	x	x	x			x	x	x			x
Black-billed Cuckoo							x	x	x	x						x	x	x					x			x
Roadrunner											x	x														
Barn Owl										x								x								x
Screech Owl										x		x				x		x			x	x	x			x
Great Horned Owl										x						x		x			x	x	x		x	
Barred Owl								x		x						x		x			x	x	x		x	
Long-eared Owl																					x	x				
Short-eared Owl					x	x																				
Saw-whet Owl												x						x		x	x	x				x
Chuck-will's-widow										x		x				x		x		x	x		x			
Whip-poor-will									x	x	x	x			x	x		x			x	x	x			x
Common Nighthawk											x								x							x
Chimney Swift																		x				x				x
Ruby-throated Hummingbird			x			x	x	x	x	x			x						x				x			x
Belted Kingfisher																							x			
Common Flicker							x	x	x	x								x	x			x	x			x
Pileated Woodpecker									x							x	x	x			x	x	x			x

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number																											
	2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number																											
	01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Red-bellied Woodpecker								x	x	x					x	x	x	x			x	x	x			x
Red-headed Woodpecker							x	x	x	x					x	x		x				x	x			x
Yellow-bellied Sapsucker									x	x								x	x		x	x	x			x
Hairy Woodpecker							x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x			x
Downy Woodpecker							x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x			x
Red-cockaded Woodpecker																						x				
Eastern Kingbird	x	x	x	x	x		x	x	x	x	x												x			x
Scissor-tailed Flycatcher			x	x	x		x	x		x																
Great Crested Flycatcher										x		x				x	x	x				x	x			
Eastern Phoebe								x	x	x								x					x		x	x
Acadian Flycatcher																	x	x					x			
Eastern Wood Pewee								x	x	x		x				x	x	x			x	x	x			
Horned Lark	x	x	x	x	x						x															x
Tree Swallow																							x			
Bank Swallow																							x		x	
Rough-winged Swallow	x	x	x	x	x	x																	x	x	x	
Barn Swallow	x	x	x	x	x	x																		x		x

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number																									
	2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number																									
	01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Cliff Swallow	x	x	x	x	x	x																		x	x	
Purple Martin	x	x	x	x	x	x																		x		x
Blue Jay							x	x	x	x	x	x		x	x	x	x	x		x	x	x	x			x
Common Crow	x	x	x	x	x			x	x	x						x		x	x			x	x			x
Carolina Chickadee							x	x	x	x	x	x			x	x	x	x				x	x			x
Tufted Titmouse								x	x	x	x	x			x	x	x	x		x	x	x	x			x
White-breasted Nuthatch								x	x	x					x	x	x	x		x	x	x	x			x
Red-breasted Nuthatch																				x	x	x				
Brown-headed Nuthatch																				x	x	x				
Brown Creeper															x	x	x	x		x	x	x	x			x
House Wren						x	x	x	x	x								x								x
Winter Wren																	x	x		x	x	x	x			x
Bewick's Wren						x	x	x	x	x													x			x
Carolina Wren						x	x	x	x	x			x				x	x			x	x	x			x
Mockingbird							x	x	x	x		x											x			x
Gray Catbird							x	x	x	x		x	x	x					x				x			x
Brown Thrasher						x	x	x	x	x		x	x	x				x	x			x	x			x
American Robin								x	x	x		x											x			x

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number																											
	2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66		
	Habitat number																											
	01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52		
Wood Thrush														x		x	x	x					x					
Hermit Thrush												x			x		x	x					x					
Eastern Bluebird								x	x	x								x								x		
Blue-gray Gnatcatcher							x	x	x	x		x			x	x	x	x					x					
Golden-crowned Kinglet										x		x								x	x	x	x					
Ruby-crowned Kinglet										x		x								x	x	x	x					
Cedar Waxwing							x		x			x						x					x			x		
Loggerhead Shrike						x		x	x	x																x		
Starling																										x		
White-eyed Vireo						x	x	x	x	x			x	x					x									
Bell's Vireo						x	x																					
Yellow-throated Vireo								x	x	x						x	x	x			x	x	x					
Red-eyed Vireo															x	x	x	x			x	x	x					
Warbling Vireo															x	x	x	x					x			x		
Black-and-white Warbler							x	x	x	x	x	x	x	x	x	x	x	x			x	x	x					
Prothonotary Warbler																							x					
Swainson's Warbler																							x					
Worm-eating Warbler														x		x	x	x					x					

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number: 2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number: 01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Blue-winged Warbler							x		x	x				x	x					x						
Bachman's Warbler																							x			
Northern Parula Warbler										x							x	x			x	x	x			
Yellow-Warbler							x																x			
Yellow-rumped Warbler						x	x	x	x	x		x	x	x	x			x				x	x			x
Cerulean Warbler															x			x					x			
Yellow-throated Warbler																		x			x		x			
Chestnut-sided Warbler										x			x													
Pine Warbler																					x	x				
Prairie Warbler							x	x	x		x	x	x						x							
Ovenbird															x	x	x	x					x			
Louisiana Waterthrush																							x			
Kentucky Warbler														x		x	x	x					x			
Common Yellowthroat						x	x			x			x						x				x			
Yellow-breasted Chat						x	x	x	x	x			x	x					x	x						
Hooded Warbler															x	x	x	x					x			
American Redstart															x	x	x						x			
House Sparrow																										x

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number 2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number 01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Eastern Meadowlark	x	x	x	x	x	x		x																		
Red-winged Blackbird	x	x	x	x	x																		x	x		x
Orchard Oriole							x		x	x								x					x			x
Northern Oriole								x	x									x					x			x
Rusty Blackbird			x			x	x	x	x														x			x
Brewer's Blackbird	x	x	x			x	x	x	x														x			x
Common Grackle	x	x	x					x	x	x								x								x
Brown-headed Cowbird				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x
Scarlet Tanager																x	x	x					x			
Summer Tanager														x	x	x	x	x					x			
Cardinal						x	x	x	x	x	x	x		x	x	x	x	x		x	x	x	x			x
Rose-breasted Grosbeak										x																x
Blue Grosbeak						x	x	x	x	x	x	x	x						x							
Indigo Bunting	x					x	x	x	x	x	x	x	x	x									x			
Painted Bunting							x			x		x														
Dickcissel	x	x	x	x	x	x		x																		
Evening Grosbeak							x			x										x						x
Purple Finch							x	x	x	x								x				x				x

Locator table for bird species associated with various habitats on the Ozark Plateau

Species	Page number																											
	2	4	6	8	10	12	14	18	22	26	30	32	34	36	38	40	42	44	48	50	52	54	58	62	64	66
	Habitat number																											
	01	02	03	04	05	06	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	41	42	51	52
Pine Siskin							x		x	x						x	x	x		x	x	x				x
American Goldfinch		x	x	x	x	x	x	x	x	x		x	x						x				x			x
Rufous-sided Towhee						x	x	x	x	x			x	x					x				x			
Savannah Sparrow	x		x		x	x																				
Grasshopper Sparrow			x	x	x																					
Lark Sparrow		x	x	x	x						x	x	x						x							
Bachman's Sparrow						x		x			x		x						x							
Dark-eyed Junco	x	x		x	x	x				x			x						x							x
Tree Sparrow	x	x				x	x	x	x	x			x						x							x
Chipping Sparrow								x	x	x								x								x
Field Sparrow						x	x	x	x	x	x	x	x						x							
Harris Sparrow		x					x			x													x			
White-crowned Sparrow	x	x	x	x	x	x	x	x	x	x																
White-throated Sparrow		x	x	x	x	x	x	x	x	x			x	x					x							x
Fox Sparrow	x	x	x	x	x	x	x	x	x	x			x	x					x							
Swamp Sparrow		x	x	x	x	x	x	x		x			x						x				x	x		
Song Sparrow	x	x	x	x	x	x	x	x		x			x	x					x				x	x		x
Number of Species	32	29	31	32	36	43	53	64	64	79	26	38	30	22	26	39	38	67	29	19	39	50	101	8	13	68

BIRDING "HOTSPOTS"
Ozark Rivers

There are more than 2,200 miles of canoeable water in the Ozark region. This is an area of big springs; clean, clear rivers; rugged forested hills; friendly people; and rich and diverse birdlife. The Ozark rivers, especially during the summer, are tame enough for family floaters. The roads normally follow the ridges, instead of the river valleys, and cross the rivers infrequently. All you have to do is launch a canoe or john boat on one of the many streams for a day, week, or month of serenity, fellowship, fishing, and birding. Scattered throughout the area are canoe rentals. The region also includes much public land — the Mark Twain National Forest, the Ozark National Scenic Riverways, and various State Parks.

Birding by canoe can be productive in any season — even winter when bald eagles are commonly seen along the larger rivers. To see the maximum number of species, go during the last two weeks in April and the first two weeks in May.

The best birding technique is to go slowly and stop often to look and listen. Birds generally are not frightened by a canoe if quick movements and loud noises are avoided. Birdlife along Ozark rivers is exceedingly rich because wooded streamsides and bottomland hardwood habitat (41) has so many trees and shrubs of different heights and sizes. You also encounter *cultivated fields* (01), *pastures* (04), *old fields* (06, 11, 12, 13), an abundance of *edge* (14), many different forest conditions, and specialized habitats such as *cliffs, bluffs,* and *caves* (61). The more habitats you search, the more species of birds you are likely to encounter.

Water attracts green herons, wood ducks, Louisiana waterthrushes, and belted kingfishers. And the productive *streamside* habitat produces an abundance of rodents and reptiles that are food items for raptors such as ospreys and red-shouldered hawks that are rarely seen in other habitats.

A few species such as the acadian flycatcher, Carolina wren, and yellow warbler prefer *streamside* habitat to all other types available in the Ozarks. In fact, *streamside* habitat is the best place in the Ozark to see and hear warblers in general. Two of the many species, Swainson's and Bachman's, are considered endangered and the Bachman's may be extinct. The Swainson's warbler selects canebreaks for nesting habitat. Canebreaks along Ozark streams are probably reduced to a size too small to support Swainson's warblers. The beautiful songs of the cerulean, yellow, and prothonotary warblers may compensate for the rarity of other species.

Sycamore, gum, and ash trees along Ozark streams are prone to heartrot and form nesting cavities for 7 woodpecker species. Including both the cavity excavators, and the secondary cavity users, 20 cavity nesting species can be observed during the summer months. The pileated woodpecker is the most spectacular of this group. This nearly crow-sized bird has a red, white, and black head pattern and a loud penetrating voice. The call, which seems to say 'Kuk-Kuk-Kuk-Kuk-Kuk", is louder, faster, and more irregular than the similar common flicker call.

Glade Top Trail

The Glade Top Trail lies southeast of Springfield, Missouri, on the Ava District of the Mark Twain National Forest. To reach the Glade Top Trail from Ava, take Missouri Highway 5 south for 5 miles, then turn right (continuing south) onto County Route A. After 2.5 miles, turn left onto a gravel road for about 2 miles to the forest boundary and the beginning of Forest Service Road 162. Just inside the boundary is a marker and map noting the official beginning of the trail. Continue following Forest Service Road 162 until it meets FS 147, then follow 147 to Missouri Highway 125.

The trail is approximately 15 miles of all-weather, all-season, gravel road traversing a variety of vegetation types. Six scenic view pulloffs and one picnic area are maintained by the USDA Forest Service. Oak-hickory forests intermixed with glades dominate the area. The glades are forest openings characterized by shallow soil, rocky outcrops, and prairie vegetation. Flowers are abundant among the prairie grasses and the species in bloom change constantly through the growing season. This adds immeasurable pleasure to the birding experience. Several woody plant species grow in the glades, but redcedar *(Juniperus virginiana)* is the most common, varying from a few scattered trees to extremely dense stands. This wide range in groundcover increases the variety of bird habitats found along the trail.

The glades are interesting at all times, but the best birding is during the breeding season (late May and June). The most common nesting species on the open glades are the prairie warbler and the field sparrow. Bachman's sparrow occurs sporadically. Indigo buntings, mourning doves, blue-gray gnatcatchers, and rufous-sided towhees occur in light to

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medium cover, while the dense redcedar cover contains many species which normally occur in the oak-hickory forest. The great crested flycatcher, ovenbird, black-and-white warbler, and Carolina chickadee are some examples. Turkey vultures are constantly in view, and black vultures are occasionally sighted.

The openness of the Glade Top Trail allows for observation of broad-winged hawks in the summer and an occasional golden eagle in the winter. At dusk, the sounds of the area are dominated by whip-poor-will and some chuck-will's-widow calls, and the hoot of an occasional barred owl. The adjacent forest is slow-growing and provides good habitat for many of the cavity nesters — the pileated woodpecker being one of the most conspicuous species. Caney Picnic Area is the best spot to see glade species such as prairie warbler and Bachman's sparrow. The Arkansas View Turnout is the best for forest species.

One special feature of the glades is the influence of the desert southwest and southern animal life which reach their northeastern limits of distribution here. The most conspicuous southwestern bird is the roadrunner; however, the painted bunting occurs near Branson, Missouri, less than 30 air miles southwest, and may possibly live in the Glade Top Trail area also. Other interesting creatures include the collared lizard *(Crotaphytus collaris),* scorpions, and tarantulas.

The Ava, Missouri, Chamber of Commerce and the USDA Forest Service sponsor a week of Glade Top Trail tours and a Sunday barbeque each year in October. Food and lodging are available at Ava, ten miles away.

Anyone interested in combining some autumn birding with a tour of the Ozarks' fall colors should visit or write the District Ranger, Mark Twain National Forest, Ava, Missouri, 65608.